

in a patch of ground which may have been formerly part of a garden. Of fifty leaves taken at random twelve had extra leaflets upon the petiole. Of these twelve, eight had two leaflets, opposite in four cases and alternate in four, and four had single leaflets upon the petiole below the normal leaflets.

May 7th, 1891, I found the extra leaflets abundant in the locality just mentioned and also upon our north campus near the lake shore. When picking at random one in every four or five had the extra one or two leaflets.

In July, 1891, I found in the herbarium of the Natural History Museum, Kensington, London, two specimens of *Fragaria Virginiana*, one collected in Colorado and the other at Kettle Falls upon the Columbia river, which had the supernumerary lateral leaflets.

My observations tend to the conclusion that in some localities twenty per cent. of the leaves of *Fragaria* have five leaflets, two of which usually disappear as the season advances leaving the normal trifoliate form.

Mrs. Kellerman, from the variations which she has noted, reasons that the strawberry is developing a quinquefoliate form of leaf. By the flight of his imagination in "The Evolutionist at Large," Grant Allen shows how the "fruit" of the strawberry may have developed from a potentilla; while the facts given above seem to indicate that the plant, so far as the leaves give evidence, is passing or has passed from a pinnate form, not unlike certain potentillas, having five or more leaflets, into a trifoliate form. These observations were made both upon *Fragaria Virginiana* and upon its variety *Illinoensis*.—C. B. ARWELL, *Northwestern University, Evanston, Ills.*

## NOTES AND NEWS.

MR. E. W. FISHER has been appointed curator of the herbarium of Indiana University.

A DICTIONARY of botanical terms by A. A. Crozier has recently been issued by Henry Holt & Co.

CORRECTION.—In Mr. A. F. Foerste's article in the August GAZETTE, on p. 244, *Hamamelis Canadensis* is mentioned twice. This was an oversight, since *H. Virginiana* was intended in both cases.

THE FOLLOWING PAPERS by Professor Pammel appear in the Proceedings of the Iowa Academy of Sciences, vol. 1, pt. 2: Woody plants of Western Wisconsin; and, Forest vegetation of the Upper Mississippi.

Dr. H. L. RUSSELL, whose studies of marine bacteria and of the immunity of plants from bacterial diseases are among important recent contributions to bacteriology, has accepted a fellowship in biology in the University of Chicago.

MR. WALTER H. EVANS has been appointed by the Department of Agriculture, in the office of Experiment Stations, to have charge of the

compilation of the botanical work of the various Experiment Stations for the "Experiment Station Record."

THE ANATOMY of the stem of *Wistaria* has been studied by Carlton C. Curtiss, and the results published in the *Journal of the N. Y. Micr. Society* (viii, 79), and again issued as the twenty-eighth Contribution from the herbarium of Columbia College.

YEAST FREE from bacteria, molds, and other impurities, obtained by Hansen's method, has been in use in this country for three years past, according to the *American Brewers' Review*, and is likely to supersede the usual methods of preparation when required in large quantities.

A SYNOPTICAL LIST, with description, of the ferns and fern-allies of Jamaica, is being published by G. S. Jenma, Superintendent of the Botanical Gardens, Demerara, in the *Bulletin of the Botanical Department, Jamaica*. The tenth number appeared in the *Bulletin* for July. The list includes many new species.

AN APPRECIATIVE notice of the life and works of Prof. Dr. Emil C. Hansen, of the Carlsberg Laboratory in Copenhagen, with portrait, appears in the *American Brewers' Review* for August 4 and 11. Dr. Hansen has greatly extended the knowledge of fermentation, and made many useful applications of his discoveries.

THE REPORT of the botanical department of the New Jersey Experiment Station for 1891 covers over a hundred pages of the fourth annual report of the Station recently issued. In this report Professor Halsted treats of a large number of fungous diseases of cultivated and wild plants and of the subject of weeds. The report is copiously illustrated.

GARDEN AND FOREST for September 21st, contains the following articles of general botanical interest: "Native shrubs of California," by Professor E. L. Greene (devoted to *Ceanothus*); "The Polemoniaceæ of the Lake Region," by E. J. Hill; and "The self-pollination of the grape," a paper read by Professor S. A. Beach at the Rochester meeting of the American Association.

PROFESSOR J. E. HUMPHREY has resigned his position as "vegetable physiologist" of the Massachusetts Agricultural Experiment Station, the resignation to take effect the first of January. After that time he will spend three or four months in Jamaica in the study of algæ and fungi. He hopes to secure some good developmental material, and to make cultures of Saprolegniaceæ, etc.

THE ENTIRE separate edition of "The Keys to Genera and Species of North American Mosses" reprinted by Prof. Barnes from vol. viii of the "Transactions of the Wisconsin Academy of Sciences, Arts and Letters," has been disposed of. The pamphlet is therefore "out of print," and can only be obtained by purchasing the volume cited which may be had of the secretary, Dr. William H. Hobbs, Madison, Wis.

PROFESSOR L. H. PAMMEL, of Iowa Agricultural College, has distributed a sixty-page pamphlet containing the following papers: "A lecture on pollination of flowers," delivered at the State Horticultural Society, January, 1892; "Cross and self-fertilization in plants," a paper

read at the meeting of the Eastern Iowa Horticultural Society, December, 1891; and "The effects of cross-fertilization in plants," read at the meeting of the Northern Horticultural Society, December, 1891. The first paper is profusely illustrated.

THE SHRINKAGE of leaves during the process of drying for herbarium specimens has engaged the attention of Mr. E. E. Bogue, who gives measurements before and after drying in *Science* for September 16. From three to five leaves of *Quercus coccinea*, *Arisæma triphyllum*, *Asimina triloba*, *Arctium Lappa*, *Asclepias Cornuti* and six other common plants, were examined and found to shrink on an average of one to three-sixteenths of an inch, except the water plant, *Nymphaea odorata*, which shrank about an inch.

TWO INTERESTING new Uredineæ from South America are described by Dietel (*Hedwigia*, 1892, p. 159). One is a *Ravenelia* on *Acacia*, and the other is a *Phragmidium* on some leguminous plant. The latter merits special attention as it is the only member of the genus not parasitic on the Rosaceæ. It has been imperfectly known for a long time from material collected by Wright in Texas (Saccardo, *Sylloge*, vii, 749). It is also remarkable for the close agreement in the physical characters of the exospore with *Uropyxis Amorphæ*.

A LETTER from Prof. L. M. Underwood, delegate from the Botanical Club of the American Association to the International Botanical Congress at Genoa, announces that the attendance was large and representative. Articles I, II and III of the Berlin recommendations were adopted, except that the American suggestion prevails and 1753 was adopted as the uniform date for genera and species. Article IV and other matters were referred to a standing international committee, upon which the American representatives are N. L. Britton, J. M. Coulter and E. L. Greene.

THE FIRST and only circular of the World's Congress Auxiliary relating to botany, which was prepared last May, and should have been mailed from the Chicago office June 1, has been tardily distributed since the September number of the *GAZETTE* went to press. The chief design of the circular was to obtain the opinion of the botanists of the country upon the feasibility of holding a botanical congress in connection with the Columbian Exposition. The belated appearance of the circular has deprived it of all value, as the botanists at Rochester, acting as a representative body, decided unanimously that a congress under such auspices was not advisable, but that instead one should be held in connection with the meeting of the A. A. A. S. next year in Madison. This will doubtless be done, whatever replies are sent to the circular.

THE CONTRIBUTIONS from the Herbarium of Columbia College are multiplying rapidly. No. 27 is entitled "Note on a collection of Tertiary fossil plants from Potosi, Bolivia," by N. L. Britton. It contains descriptions of some eighteen species, illustrated by three plates. Eleven of the species are new. No. 28 is upon "The anatomy of the stem of *Wistaria Sinensis*," by Carlton C. Curtiss, illustrated by three plates. No. 29 is the sixth bearing the title "New or noteworthy North American phanerogams," by N. L. Britton. Among other notes a new

eastern *Cardamine* is separated from among other forms; the var. *mollis* of *Agrimonia Eupatoria* is raised to specific rank, as is also the var. *Americana* of *Fragaria vesca*; a new *Polemonium* of the North Atlantic states is described and figured; also a new *Phlox* from Montana and Dakota.

AT HIS OWN request Prof. C. R. Barnes has been relieved of revising Gray's "Field, Forest and Garden Botany." The prescribed limitations of space and the ever increasing number of species of cultivated and native plants which it seemed necessary to include proved irreconcilable. His feeling that he could not, under the conditions imposed, make a work satisfactory to himself, led Prof. Barnes to abandon the task. It has now been put into the hands of Prof. L. H. Bailey, whose extensive familiarity with the plants of our fields, forests and gardens will insure a careful and thorough revision. A tentative list of the species to be included, involving a considerable study of the nomenclature of cultivated plants, together with the first draft of the manuscript through Leguminosæ have been placed in Prof. Bailey's hands for such use as he may see fit to make of them.

TWO HUNDRED and forty dollars have been placed at the disposal of the American Microscopical society, to be given as prizes for the encouragement of microscopical research, and Profs. S. H. Gage, of Ithaca, N. Y., D. S. Kellicott, of Columbus, O., and W. H. Seaman, of Washington, D. C., were appointed a committee to prepare the conditions on which they should be granted. The competition will be open to members of the society and to those who make application for membership, before submitting their papers to the committee, which has prescribed the following conditions:

One prize of fifty dollars is offered for the best paper which shall give the results of an original investigation made with the microscope and relating to *plant* life, not less than 3,000 words in length. The methods by which the results were obtained must be given in full. A similar prize for an investigation relating to *animal* life.

Two prizes of twenty-five dollars each will be given for the second best papers on plant and animal life, respectively, on the above conditions.

The papers, drawings and specimens entered for the above prizes are to be submitted to the committee on or before July 1st, 1893, and the papers and drawings will be published in the Proceedings.

One prize of thirty dollars is offered for the best six photomicrographs on some subject in animal or vegetable histology, and another of the same amount for the best collection of six mounted slides illustrating some one biological subject.

There are also two prizes of fifteen dollars each for the second best collection of photomicrographs and slides respectively.

The object of these prizes is to stimulate and encourage original investigation in the biology of North America.

Additional information as to the conditions may be obtained of the committee on prizes.